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Biotechnology - GE Plants and Animals

Kenya Agricultural Biotechnology Annual Report

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Report Highlights:

Reportedly, the Government of Kenya will soon publish a partial set of agriculture biotechnology regulations. There are indications that the first round of regulations won't address controversial subjects such as labeling, but will likely establish the way forward to begin agriculture biotechnology "event" trials, and regulate trade in the products of biotechnology engineering.

Section I. Executive Summary:

Kenya's parliament passed a Bill, now known as the "Biosafety Act 2009," in December 2008 and President Kibaki signed the Bill into Law, when it became an "Act" in February 2009. Under terms of the Act, the National Council of Science and Technology (NCST) spearheaded initial development of the biotechnology regulations that may soon guide research and trade in biotechnology. The regulation-development role will reportedly now be taken up by the newly formed National Biosafety Authority (NBA).

Reportedly, Kenyan regulators have written the “non-contentious” agriculture biotechnology regulations, while leaving more contentious issues such as labeling and product liability for later development. The Minister for Science and Technology now has the regulations on his desk. Once he signs, the GOK will publish them in the Gazette, making them immediately operational.

However, agriculture biotechnology does not currently command center stage in Kenya. As a result, putting the newly drafted regulations into operation may yet be delayed. Debate over a proposed new constitution has the full attention of Kenyans and their Government leaders, with “yes” and “no” campaigns arguing many of its controversial points. We expect that the Minister for Science and Technology (former Minister of Agriculture) will not find time to sign the regulations into law until after the August 4, 2010, constitutional-reform vote.

Most Kenyans, who have at least a minimal understanding of the potential for agriculture biotechnology, remain optimistic that the technology holds great promise for improved yields through improved drought tolerance, resistance to disease, etc. and maybe even provide improved nutrition in future “events.” According to the Center for Strategic and International Studies from their paper entitled “African Perspective on Genetically modified Crops” and located at the following Website http://csis.org/files/publication/100701_Cooke_AfricaGMOs_WEB.pdf, the passage of the Biosafety Act has apparently helped to overcome public suspicions of agriculture biotechnology, and “organized opposition seems to be diminishing.”

In the report here below, FAS/Nairobi has updated, to a greater or lesser degree, all of the Sections of the 2009 report.

Section II. Plant Biotechnology Trade and Production:

Current Kenyan regulations require an import declaration of the genetic status of all food crops. U.S. exporters shipped 250,000 tons of U.S. white corn to Kenya via the commercial market during marketing year 2009 and also shipped processed yellow corn and soy products, as a part of food aid efforts conducted mostly by the World Food Program. South Africa continues to supply the Kenyan market with white corn that has a high likelihood of containing biotechnology corn. On occasion, the Kenyan press picks up this story, but just as quickly, the story dies from lack of general interest.

The new agriculture biotechnology regulations will likely address trade in biotechnology events. In spite of those signature-pending regulations, however, it remains unclear that Kenyan port and border crossing authorities have the necessary training and equipment to sample and test for unauthorized biotechnology events.

The Kenya Agriculture Research Institute provided the information for the following table (it may not capture all of the trials currently being conducted in Kenya). While some of the table entries may involve gene modification using modern agriculture biotechnology, others may be using more “traditional” methods including tissue culture and hybridization.

Crop	Year Trials Began	Current Status	Collaborators
Virus-resistant sweet potato	1998	Confined Field Trial (CFT)	KARI, Monsanto, USAID, ARC-VOPI (South Africa), Danforth Center (USA)
Insect-resistant corn	2001 leaves 2003 seeds	CFT	KARI, CIMMYT, Syngenta Foundation, Rockefeller Foundation
Insect-resistant Cotton	2003	CFT	KARI, Monsanto
Virus-resistant cassava	2003	CFT	KARI, Danforth Center (USA), USAID/ABSP 11
Fortified	2005 &	CFT	Africa Harvest, Pioneer, KARI, AATF

sorghum	2009		
Water efficient, drought-resistant corn	2008	CFT	AATF, CIMMYT, Monsanto and National agricultural research systems in Kenya, Mozambique, South Africa, Tanzania and Uganda. Funding provided by the Bill & Melinda Gates and the Howard G. Buffett foundations

Section III. Plant Biotechnology Policy:

The NBA is now the government agency responsible for the implementation of the Biosafety Act, as well as International biotechnology agreements such as the Cartagena protocol. The NCST established the NBA to develop agricultural biotechnology policies and review applications to begin field trials and eventually commercialization. Participation on the NBA includes representatives from Government Ministries, as well as scientists from civil society and the national universities.

GOK ministries and roles on the NBA include: The Kenya Plant Health Inspectorate Service, Ministry of Agriculture, which oversees the introduction, testing and use of biotechnology plants and seeds; the Ministry of Health and the Kenya Bureau of Standards, which regulate food safety; the Ministry of Environment and Natural Resources, which oversees environmental questions and conducts environmental impact assessments; and, the Pest Control Products Board, which regulates pesticides.

Section IV. Plant Biotechnology Marketing Issues:

In studies done in 2003, 2006 and 2007 by the International Maize and Wheat Improvement Centre (CIMMYT), KARI and Kansas State University, Kenyan consumers were found to accept agricultural biotechnology and genetic modification of foods at rates well below 50 percent (please see table below). Processors and retailers showed a higher level of acceptance, especially with regard to genetically modified foods.

Biotechnology Awareness in Kenya

Type	Area or Industry	Number	Awareness	
			Biotechnology	GM* crops
Urban consumers	Nairobi	612	46	38
Rural consumers	Western Kenya	121	16	13
	Eastern Kenya	400	63	31
Gatekeepers	Milling companies	32	67	87
	Supermarkets	40	83	79

Source: CIMMYT *GM – Genetically Modified

In an attempt to improve the knowledge and acceptance of biotechnology and GMO crops and foods, the GOK, with support from USAID and other donors, established a National Biotechnology Awareness Creation Strategy (BioAware-Kenya).

How the vast majority of small-scale Kenyan farmers will react to the opportunity to buy and plant biotechnology seeds remains an open question. From present-day experience, it is clear that Kenyan farmers have not fully exploited all of the currently-available, production-enhancing technologies. Some of the simplest and most cost-effective strategies, such soil testing to determine the correct volumes of commercial fertilizer applications necessary to maximize crop yields, are not employed by the vast majority of Kenyan small-scale farmers.

A new approach to agriculture policy that includes capacity and confidence building, policy stability in form and application from year-to-year and production and trade enhancing characteristics will be needed in Kenya before the full benefits of agriculture biotechnology can be realized. Poor policies mean farmers minimize their investment in agriculture, because of their inability to predict/expect profits from efforts. As an example, last year the GOT paid Kenya Shilling (KS) 2,500 per 90 kilo bag of corn at harvest time. This year, farmers report that the GOT may currently be offering only KS 1,000 per bag in some locations and for corn thought to contain aflatoxin. In addition, it is commonly reported that the National Cereals and Produce Board (a parastatal organization responsible to the ministry of agriculture) may not pay farmers on a timely basis for their corn harvest. As a result, farmers have been and will be reluctant to invest heavily in seeds, fertilizer, and other variable costs at planting and throughout the growing seasons.

Section V. Plant Biotechnology Capacity Building and Outreach:

The following list represents U.S. Government funded biotechnology capacity building and outreach activity:

1. Fellowship programs in agriculture biotechnology, intellectual Property rights, technology transfer, and policy development;
2. Farmer-to-farmer capacity building workshops;
3. Biotechnology speaker programs;
4. Biotechnology public awareness and outreach; and,
5. Support to African biotechnology stakeholder organizations.

Additional capacity building will strengthen Kenyan biotechnology and GMO researchers, GOK regulatory officials and private sector resellers. Continued awareness building will likely help consumers understand the benefits of genetic engineering and biotechnology crops and foods.

Section VI. Animal Biotechnology:

Kenya does not currently use, nor participate in, scientific studies that employ animal genetic modification (AGM) or cloning. Reportedly, the Ministry of Livestock has not proposed AGM legislation or regulations and furthermore has not broached the topic with other Government regulators.